

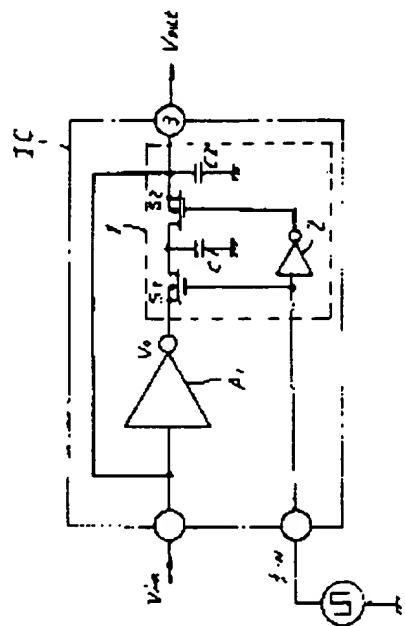
PATENT ABSTRACTS OF JAPAN(11)Publication number : **60-058705**(43)Date of publication of application : **04.04.1985**

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H03D 7/00(21)Application number : **58-166614**(71)Applicant : **HITACHI LTD**(22)Date of filing : **12.09.1983**(72)Inventor : **MATSUDA TOSHIHIRO****(54) FREQUENCY CONVERTING CIRCUIT****(57)Abstract:**

PURPOSE: To perform frequency conversion with simple circuit constitution by providing a time constant circuit whose time constant is varied by a control signal to a feedback circuit of an amplifier.

CONSTITUTION: The feedback circuit of the amplifier A1 is provided with a switched capacitor filter (SCF)1 whose time constant is varied by a frequency of control signal fin so as to change the frequency of a feedback signal in response to a frequency of the control signal thereby attaining frequency conversion. Since the switched capacitor acts equivalently like a resistor having a resistance $R=1/fin \cdot C$ in the SCF1, when the frequency of the control signal fin is small or large, the resistance value of the switches S1, S2 is respectively large or small. Thus, the time constant changes by varying the pulse width of the signal fin, that is, the frequency. When the control signal fin is changed into a low frequency in this state, the time constant of the SCF1 is large, the frequency of an output signal Vout is decreased and a frequency ($fin > Vout$) is obtained. Further, when the signal fin is varied into a high frequency, the frequency signal ($fin < Vout$) is obtained.

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